

University of Guelph
College of Biological Science
Department of Human Health and Nutritional Science
COURSE OUTLINE
Cardiovascular and Respiratory Physiology
HHNS*6500
Fall 2018

I) COURSE INFORMATION:

Instructor:

Dr. Trevor King

Office: HHNS ANNEX 269

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Course description: This course will use both review articles and the primary literature to build a broad base of understanding of the cardiovascular and respiratory systems as well as explore current research in specific areas in this knowledge paradigm. Further, this course will build research skills through by strengthening critical analysis skills and both oral and written communication skills through learning about the cardiovascular and respiratory system and how they integrate.

Credit value: 0.5

Pre-requisites: none

Course Lecture Schedule: Wed 2:00 pm to 4:50 pm CRSC, Room 101

II) LEARNING GOALS AND RATIONALE:

The overarching philosophy of this course is to establish research competency by developing tenants of scientific inquiry: critical evaluation, effective scientific writing and presentation skills; all done using the primary scientific literature in the areas of the cardiovascular and respiratory system and how they integrate.

The goals of this course are to build strong research skills including critical analysis, oral and written communication skills. These skills will undergo multiple and continuous assessment during the course.

Critical analysis skills will be developed by evaluation of over 30 research papers using a template of questions to guide students through the evaluation process. The goal is to make these template questions habit when critically reading any research paper.

Oral communication skills will be developed through the presentation of information encompassed in primary research articles with the goal being to teach fellow students. This exercise will be evaluated by peers who also will have to be reflective on how this presentation will enhance their own presentation style. There will be a self-evaluation component to reflect on strengths and weaknesses. Oral communication skills will also be strengthened through a proposal-style PowerPoint presentation of a proposed experiment.

Written communication skills will be developed through weekly written summaries of primary literature article. The logic of scientific writing will be reinforced through weekly critical analysis exercises of the primary literature. Logic will also be explored through the in-class generation of a PowerPoint presentation of an experiment that the student proposes. The importance of logic in both oral and written communication will be emphasized through orally presenting a proposal of their own work.

All of the above skills development will be done using class presentation and class discussion of review and primary articles on the cardiovascular system and the respiratory system as our base of discussion.

Learning Outcomes:

By the end of this course students will be able to:

- 1) critically evaluate published research in the area of cardiovascular and respiratory physiology.
- 2) communicate effectively through formal and informal oral presentations.
- 3) communicate effectively through formal and informal writing, with an emphasis on scientific writing.
- 4) integrate research findings into the basic understanding of how the cardiovascular system and the respiratory system work.
- 5) effectively work with peers to meet learning goals through collaboration.
- 6) appreciate scientific, ethical and practical considerations behind designing and conducting research.
- 7) identify gaps in knowledge in the area of cardiovascular and respiratory physiology.
- 8) develop respectful academic and professional behavioral practices

III) TENTATIVE SCHEDULE – WILL LIKELY CHANGE

DATE	Reading Topic	Activities	Assessment
Sept 12		Introduction to course	
Sept 19	Endothelial function – Shear stress	Overview – King Oral Summary and presentation	Oral presentation Peer assessment Self-assessment
Sept 26	Cardiac function – contractile proteins	Overview – King Oral Summary and presentation	Oral presentation Peer assessment Self-assessment
Oct 3	Cardiac function – systemic links or Vasculature - sympatholysis	Overview – King Oral Summary and presentation	Oral presentation Peer assessment Self-assessment
Oct 10	Writing a problem statement	Overview – King	None
Oct 17	Vasculature – active hyperemia	Overview – King Oral Summary and presentation	Oral presentation Peer assessment Self-assessment
Oct 24	Respiratory control	Overview – King Oral Summary and presentation	Oral presentation Peer assessment Self-assessment
Oct 31	Neural integration of the cardiovascular system – sex differences	Overview – King Oral Summary and presentation	Oral presentation Peer assessment Self-assessment
Nov 7	Neural integration of the cardiovascular system – SNS response to exercise	Overview – King Oral Summary and presentation	Oral presentation Peer assessment Self-assessment
Nov 14	Exercise – limits to performance – stroke volume	Overview – King Oral Summary and presentation	Oral presentation Peer assessment Self-assessment
Nov 21	Exercise – limits to performance – central governor?	Overview – King Oral Summary and presentation	Oral presentation Peer assessment Self-assessment
Nov 28	Student proposal presentations	1. 2. 3. 4. 5. 6.	Oral presentation Peer assessment Self-assessment

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*Activities may change depending on the number of students in the class

IV) RESOURCES:

Primary research papers and review articles. Articles will be posted on CourseLink at least 1 week ahead of the class

V) ASSESSMENT:

Weight of assessment	Activity	Learning outcome addressed
10%	In class peer and self-assessments	2,3,5,6,8
40%	Written summaries	1,3,4,6,7,8
20%	Oral presentations of papers	2,3,5,6,7,8
10%	Oral presentation of own choice	2,3,6,7,8
20%	Professional behavior and academic development	1,2,3,4,5,6,7,8

- a) In class assessments: Students will assess their peers' presentations of papers and will assess their own presentations of papers.
- b) Written summaries for each original research article will be completed and submitted by 10:00am on Monday, two days before the papers will be discussed. An electronic copy must be uploaded into the dropbox on the Courselink site for the course. Summaries are NOT to be completed for review articles. Written summaries will be approximately 1 page in length and will include the hypothesis or purpose of the paper and why this is an important question to answer, key methods/protocols used, the key results (i.e. address the importance of each figure and table, and important results from the text) and the conclusions from the paper. There will be a handout of guiding questions to help with the content here.
- c) Oral summaries of the papers about to be discussed will be presented by students each week. These summaries will be ~10 minutes and consist of 8-10 slides/overheads.
- d) Oral presentation of own work: Students will present an idea, they will tell why it is important know the answer (introduction), develop a hypothesis, present how they would test it (methodology), present data that they would get from this methodology (results) and present their conclusions based on their results. Presentations will be 10 minutes in length

- e) Professional behavior and academic development: This includes skills such as leadership, teamwork, intellectual independence, personal organization and time management. These skills are shown through meaningful and thoughtful contributions to conversations, leadership in discussions, engaging others in meaningful dialogue, etc. Further these skills are demonstrated through activities such as handing in assignments on time, coming to class on time, respectful classroom conduct (i.e. not distracted by computers, cell phones, etc.). These types of activities will be assessed per week throughout the course.

VI) Course and University Policies

a. University Policies

When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the graduate calendar for information on regulations and procedures for Academic Consideration: <https://www.uoguelph.ca/registrar/calendars/graduate/2015-2016/pdffiles/genreg.pdf>

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact Student Accessibility Services as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: <http://www.csd.uoguelph.ca/csd/>

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from

responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Graduate Calendar:

<https://www.uoguelph.ca/registrar/calendars/graduate/2015-2016/pdffiles/genreg.pdf>

E-mail Communication

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly. E-mail is the official route of communication between the University and its students.

Drop Date

The last date to drop one-semester courses, without academic penalty, is the 40th class day. To confirm the actual date, please see the schedule of dates in the Graduate Calendar. For regulations and procedures for Dropping Courses, see the Graduate Calendar:

<https://www.uoguelph.ca/registrar/calendars/graduate/2015-2016/sched/index.shtml>

Copies of out-of-class assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs:

<http://www.uoguelph.ca/registrar/calendars/index.cfm?index>

b. INSTRUCTOR POLICIES:

Technology in the classroom

Feel free to bring your laptop to lectures, but only use it in a manner that will not disturb those around you. Please do not use your laptop for anything other than activities related to this physiology course. Turn your cell phones off, or put them on silent, and do not text-message during class.

VII) Campus Resources

If you are struggling to succeed academically:

- There are numerous academic resources offered by the Learning Commons including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills. You can also set up individualized appointments with a learning specialist. <http://www.learningcommons.uoguelph.ca/>

If you are struggling with personal or health issues:

- Counselling services offers individualized appointments to help students work through personal struggles that may be impacting their academic performance.

<https://www.uoguelph.ca/counselling/>

- Student Health Services is located on campus and is available to provide medical attention.

<https://www.uoguelph.ca/studenthealthservices/clinic>

- For support related to stress and anxiety, besides Health Services and Counselling Services, Kathy Somers runs training workshops and one-on-one sessions related to stress management and high performance situations. <http://www.uoguelph.ca/~ksomers/>

If you have a documented disability or think you may have a disability:

- The Centre for Students with Disabilities (CSD) can provide services and support for students with a documented learning or physical disability. They can also provide information about how to be tested for a learning disability. For more information, including how to register with the centre please see: <https://www.uoguelph.ca/csd/>